


MEMORANDUM

Department of Environmental Quality
Division of Water Program Coordination

SUBJECT: Guidance Memo No. 00-2005
VPA General Permit Eligibility – Dairy Operations

TO: Regional Directors

FROM: Larry G. Lawson, PE 

DATE: March 23, 2000

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The following guidance relates to the Virginia Pollution Abatement General Permit for Confined Animal Feeding Operations. This document can be helpful determining if a dairy operation is eligible to be covered under the general permit. Salient points in the guidance are the definition of confinement, and the determination and calculation of animal units. The examples may be used as reference in discussions between DEQ staff concerning eligibility for specific dairy operations.

When determining if a farm qualifies for the VPA General Permit, one must first ask two questions, followed by two additional questions.

- 1) Are animals confined? (45 days or more over a twelve-month period, on a bare lot or concrete floor)
- 2) Does it utilize a liquid manure collection and storage system?

If the answer to both of the first two questions is yes and if the answer to either of the following questions is greater than or equal to 200 mature dairy cattle or 300 Animal Units (AUs), then the farm qualifies for the general permit.

- 3) How many animals are confined?
- 4) How many animals contribute to the liquid manure collection and storage system?

DEQ does not want to time cows to see how long they are in the milking parlor or being fed under confinement. If an animal is confined (i.e., on a bare feed lot or concrete floor) for any part of the day, then that animal is considered by DEQ (and US EPA) to be confined for that entire day. Milking is confinement. If animals are confined for 45 days or more in a twelve-month period, and crops, vegetation, forage growth, or post harvest residues are not sustained over any portion of the lot or facility, then the operation is considered a CAFO for VPA purposes. If the CAFO has more than 200 mature dairy cattle or the total number of AUs is ≥ 300 and it utilizes a liquid manure collection and storage system, then it is eligible to be covered under the VPA General Permit. If it does not use a liquid manure collection and storage system and is a potential or actual contributor of pollution to state waters, then it may be covered with an individual VPA permit.

There has also been discussion over how to calculate the number of animal units. VPA regulations cover 200 mature dairy cattle (whether milked or dry) or 300 AUs under confinement. For operations that do not meet the threshold number of 200 mature dairy cattle, we will use the ratio of 1.4 AU / mature dairy cattle, regardless of breed. This ratio is consistent with NPDES and VPDES regulation. In order to be consistent throughout the Commonwealth, we must use this average weight for all mature dairy cattle (whether milked or dry). Animal units for other confined groups (i.e. heifers, calves, etc.) will be calculated using the standard AU equation:

$$(\text{Average animal weight lbs.} / 1000 \text{ lbs.}) \times \text{Total Animals in group} = \text{Total AUs in group}$$

Sum total AUs from confined mature dairy cattle and all other confined groups for a grand total of confined animal units for the operation.

If you have any questions regarding this guidance, please contact Scott Haley at 804/698-4443, or e-mail at tshaley@deq.state.va.us.

DISCLAIMER

This document provides procedural guidance to the permit staff. This document is guidance only. It does not establish or affect legal rights or obligations. It does not establish a binding norm and is not finally determinative of the issues addressed. Agency decisions in any particular case will be made by applying the State Water Control Law and the implementation regulations on the basis of the site-specific facts when permits are issued.

Example 1

A dairy owned by Joe Farmer has 340 animals. 250 cows are milked. Of the 250 that are milked, 150 head are confined in a barn, and 100 head have use of an adjoining pasture. Of the 90 head that are not milked, there are 30 mature dry cows and 60 heifers that are pastured. No other animals are fed with the milked cows. This farm has a liquid waste system with a 300,000-gallon capacity pit that handles manure and parlor washwater.

- 1) (250 cows milked) = Over 200 mature dairy cattle
- 2) This farm has a pit (liquid storage) that receives waste.

Are animals confined? **Yes**. Does the operation utilize a liquid manure collection and storage system? **Yes**. 250 mature dairy cattle are confined (milked = confined). 250 mature dairy cattle contribute to the liquid waste storage system. This dairy operation is eligible to be covered under the general permit because the answer to the first two questions is yes and both of the second set of questions is ≥ 200 mature dairy cattle. The 90 head that are pastured and not milked do not count toward the total AUs for VPA purposes, because they are not confined and are not contributing to the waste storage system.

Example 2

Same case as Example 1, except the farm has 280 animals. 190 cows are milked. Of the 190 that are milked, 100 head are confined in a barn, and 90 head have use of an adjoining pasture. Of the 90 head that are not milked, there are 25 mature dry cows and 65 heifers that are pastured.

- 1) (190 cows X 1.4 AUs/cow) = 266 AUs
- 2) This farm has a pit (liquid storage) that receives waste.

Are animals confined? **Yes**. Does the operation utilize a liquid manure collection and storage system? **Yes**. 266 AUs are confined (milked = confined). 266 AUs contribute to the liquid waste storage system. This dairy operation is not eligible to be covered under the general permit because the answer to the first two questions is yes and neither of the second set of questions is ≥ 300 AUs. The 90 head that are pastured and not milked do not count toward the total AUs for VPA purposes, because they are not confined and are not contributing to the waste storage system.

Example 3

Martin Farms, Inc. operates a 290-head dairy. 190 cows are milked and confined in a barn. The barn floor is concrete and manure is pushed to a drop box, where it is flushed with parlor washwater and/or recycled wastewater, into an earthen storage facility. 30 mature dry cows that are pastured next to the barn are fed every day in one end of the barn, and their manure is also pushed to the drop box. 70 heifers are pastured and not fed in the barn. The farm buys other replacement heifers from a neighboring farm as needed.

$$\begin{aligned} 1) \quad & (190 \text{ head milked} \times 1.4 \text{ AUs / cow}) = 266 \text{ AUs} \\ & (30 \text{ mature dry cows fed} \times 1.4 \text{ AUs / cow}) = 42 \text{ AUs} \\ & \text{Total AUs} = 308 \end{aligned}$$

- 2) This farm has a lagoon/pit (liquid storage) that receives waste.

Are animals confined? **Yes**. Does the operation utilize a liquid manure collection and storage system? **Yes**. 308 AUs are confined. The 30 dry cows being fed each day are considered confined. 308 AUs contribute to the liquid waste storage system. This dairy operation is eligible to be covered under the general permit because the answer to the first two questions is yes and both of the second set of questions is ≥ 300 AUs. This operation is eligible to be covered under the general permit because 308 AUs are confined and contribute to the liquid waste storage system.

Example 4

Same as Example 3, but the 30 mature dry cows are confined in one end of the barn and their manure is dry-stacked and land applied.

$$\begin{aligned} 1) \quad & (190 \text{ head milked} \times 1.4 \text{ AUs / cow}) = 266 \text{ AUs} \\ & (30 \text{ mature dry cows fed} \times 1.4 \text{ AUs / cow}) = 42 \text{ AUs} \\ & \text{Total AUs} = 308 \end{aligned}$$

- 2) This farm has a lagoon/pit (liquid storage) that receives waste.

Are animals confined? **Yes**. Does the operation utilize a liquid manure collection and storage system? **Yes**. 308 AUs are confined. 266 AUs contribute to the liquid waste storage system. This dairy operation is eligible to be covered under the general permit because the answer to the first two questions is yes and one of the second set of questions is ≥ 300 AUs. This operation is eligible to be covered under the general permit because 308 AUs are considered confined and it utilizes a liquid waste system.

Example 5

Sam Jones and Sons, Inc. operates a 360-head dairy. The farm milks 220 cows and dry-stacks their manure for land application. Parlor washwater is stored in two 6,000-gallon tanks and is land applied. Of the 140 head not milked, 70 are dry cows and 70 are young heifers, all of which are pastured and not confined.

- 1) (220 head milked = Over 200 mature dairy cattle
- 2) This farm has a liquid waste collection and storage system.

Are animals confined? **Yes.** Does the operation utilize a liquid manure collection and storage system? **Yes.** 220 mature dairy cattle are confined. 220 mature dairy cattle contribute to the liquid waste storage system. This dairy operation is eligible to be covered under the general permit because the answer to the first two questions is yes and both of the second set of questions is ≥ 200 mature dairy cattle.

For VPA purposes, any liquid manure collection and storage system (manure or parlor washwater) will satisfy the requirement of the general permit. Parlor washwater contains manure. The law requires adequate waste storage capacity to accommodate periods when the ground is frozen or saturated, or periods when there is little or no crop nutrient uptake. Usually, this means 120 days of storage, unless the Department of Conservation and Recreation approves otherwise in a Nutrient Management Plan. In this example, if the operation did not have a sufficient parlor washwater plan or storage according to DCR, then it would be covered under a VPA individual permit with a schedule for compliance, because the number of confined mature dairy cattle is greater than 200.

Example 6

Just like example 5 except a 290-head dairy. The farm milks 170 cows and dry-stacks their manure for land application.

- 1) (170 head milked X 1.4 AUs / cow) = 238 AUs
- 2) This farm has a liquid waste collection and storage system.

Are animals confined? **Yes.** Does the operation utilize a liquid manure collection and storage system? **Yes.** 238 AUs are confined. 238 AUs contribute to the liquid waste storage system. This dairy operation is not eligible to be covered under the general permit because the answer to the first two questions is yes, but neither of the second set of questions is ≥ 300 AUs. As in example 5, DEQ requires no discharge to State waters for manure or parlor washwater.

Example 7

Clearbrook Farm, Inc. operates on both sides of Rt. 600 in Rural County, Virginia. On one side of the road, the farm milks 140 barn-housed cows and has earthen storage for manure and parlor washwater. Twenty-five dry cows are pastured on this side of the road, and are not fed under confinement. On the other side of the road, heifers and beef feeder cattle are fed in a barn lot that was part of the original dairy operation. The barn lot is used in the winter months for approximately 120 days. Manure is pushed and stacked for land application. Three groups of animals are fed: 1) 60 young heifers (avg. wt. 600lbs), 2) 60 older heifers (avg. wt. 1000lbs), and 3) 40 beef feeder cattle (avg. wt. 1000lbs). All of the farm's acreage is utilized for the land application of manure generated on both sides of the road.

1) (140 head milked X 1.4 AUs / cow)	=	196 AUs
2) (60 young heifers X 600lbs/cow) / 1000	=	36 AUs
3) (60 older heifers X 1000lbs/cow) / 1000	=	60 AUs
4) (40 beef feeder cattle X 1000lbs) / 1000	=	40 AUs
Total Confined AUs	=	332

- 5) This farm has a liquid waste collection and storage system.

Are animals confined? **Yes.** Does the operation utilize a liquid manure collection and storage system? **Yes.** 332 AUs are confined. 196 AUs contribute to the liquid waste storage system. This dairy operation is eligible to be covered under the general permit because the answer to the first two questions is yes, and one of the second set of questions is ≥ 300 AUs. This operation is eligible to be covered under the general permit because 332 AUs are confined. If the 40 beef feeder cattle in this example were pastured and not fed on the lot, then this operation would not be eligible for the general permit, because only 292 AUs would be considered confined.

VPA Permit Regulation states that "two or more confined animal feeding operations under common ownership are considered ... to be a single confined feeding operation if they adjoin each other or if they use a common area [manure application fields] or system for the disposal of wastes". This example meets both of the above conditions. Also, in this example, the nutrient management plan would most likely be written for the entire operation.